Algebra 1 Quick-Quiz-11202023

Question 1.

Which of the following is equivalent to this expression?

$$-5x(-6x^2 + 1)$$

Ⓐ $30x^3 - 4x$

Ⓑ $30x^3 - 5x$

Ⓒ $-11x^3 - 4x$

Ⓓ $-11x^3 - 5x$

Question 2

Consider this function.

$$f(x) = x(18 - x)$$

What are the values of $f(0)$, $f(5)$, and $f(18)$?

Ⓐ $f(0) = -18$
$f(5) = 90$
$f(18) = -36$

Ⓑ $f(0) = 0$
$f(5) = 90$
$f(18) = -324$

Ⓒ $f(0) = 0$
$f(5) = 65$
$f(18) = 0$

Ⓓ $f(0) = 18$
$f(5) = -450$
$f(18) = -36$

Question 3.

Which of the following is equivalent to this expression?

$$4k^4 + 16k^3 + 10k^2$$

Ⓐ $4k^2(k^2 + 4k + 2)$

Ⓑ $2k^2(2k^2 + 8k + 5)$

Ⓒ $2(2k^4 + 14k^3 + 8k^2)$

Ⓓ $2k^2(2k^2 + 16k + 10)$

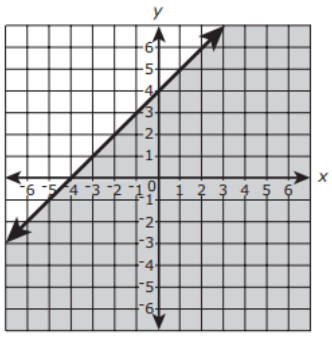
Question 4.

Consider this inequality.

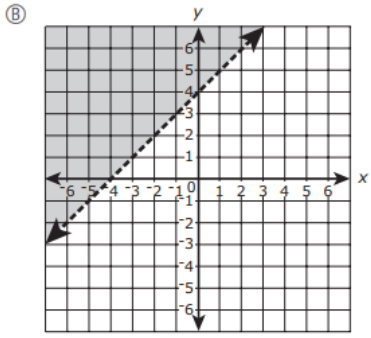
$$y \geq x - 4$$

Which of the following graphs represents the solution set of the inequality?

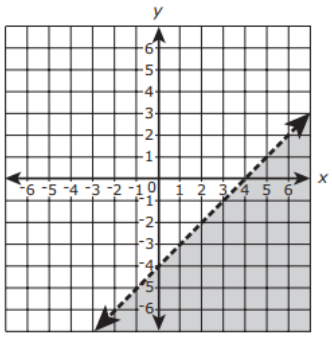
Ⓐ



Ⓑ



Ⓒ



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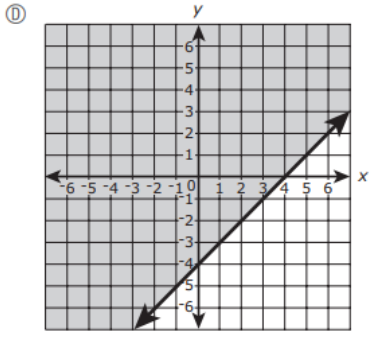

Question 5.

Line w is represented by this equation.

$$y = 5x + 3$$

Which of the following equations represents a line that is perpendicular to line w?

Ⓐ $y = -\frac{1}{5}x + 1$

Ⓑ $y = -5x + 1$

Ⓒ $y = \frac{1}{5}x + 1$

Ⓓ $y = 5x + 1$

Question 6.

What are the solutions of this equation?

$$x^2 + 7x + 12 = 0$$

Ⓐ $x = -3; x = -4$

Ⓑ $x = -2; x = -6$

Ⓒ $x = 2; x = 6$

Ⓓ $x = 3; x = 4$

Question 7.

Which of the following is equivalent to this expression?

$$x^2 + 5x - 84$$

Ⓐ $(x + 6)(x - 14)$

Ⓑ $(x - 6)(x + 14)$

Ⓒ $(x + 7)(x - 12)$

Ⓓ $(x - 7)(x + 12)$

Question 8.

Which of the following statements is true?

Ⓐ The sum of two rational numbers is rational.

Ⓑ The product of two rational numbers is irrational.

Ⓒ The sum of a rational number and an irrational number is rational.

Ⓓ The product of a non-zero rational number and an irrational number is rational.

Question 9.

Which of the following statements is true?

Ⓐ The sum of $\frac{\pi}{2}$ and $\frac{\pi}{2}$ is rational, and the product of $\frac{1}{2}$ and π is rational.

Ⓑ The sum of $\frac{\pi}{2}$ and $\frac{\pi}{2}$ is rational, and the product of $\frac{1}{2}$ and π is irrational.

Ⓒ The sum of $\frac{\pi}{2}$ and $\frac{\pi}{2}$ is irrational, and the product of $\frac{1}{2}$ and π is rational.

Ⓓ The sum of $\frac{\pi}{2}$ and $\frac{\pi}{2}$ is irrational, and the product of $\frac{1}{2}$ and π is irrational.

Question 10.

Which of the following is the solution set of this inequality?

$$2 - 4y > 14$$

Ⓐ $y > -3$

Ⓑ $y < -3$

Ⓒ $y > 3$

Ⓓ $y < 3$

Bonus
Question 11

This table shows the values of the linear function $f(x)$ for different values of x.

x	$f(x)$
0	120
20	90
40	60
60	30

The function $g(x)$ is represented by this equation.

$$g(x) = 10x + 40$$

Which statement correctly compares the rates of change and y-intercepts of $f(x)$ and $g(x)$?

Ⓐ Function $f(x)$ has a greater rate of change and a greater y-intercept than function $g(x)$.

Ⓑ Function $g(x)$ has a greater rate of change and a greater y-intercept than function $f(x)$.

Ⓒ Function $f(x)$ has a greater rate of change than function $g(x)$, and function $g(x)$ has a greater y-intercept than function $f(x)$.

Ⓓ Function $g(x)$ has a greater rate of change than function $f(x)$, and function $f(x)$ has a greater y-intercept than function $g(x)$.